



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,263	12/15/2003	Jean-Marc Perot	15818-4US AD/mb	1474
20988	7590	10/09/2007		
OGILVY RENAULT LLP 1981 MCGILL COLLEGE AVENUE SUITE 1600 MONTREAL, QC H3A2Y3 CANADA			EXAMINER LEWIS, RALPH A	
			ART UNIT 3732	PAPER NUMBER
			MAIL DATE 10/09/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/734,263

Applicant(s)

PEROT ET AL.

Examiner

Ralph A. Lewis

Art Unit

3732

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **Objection to the Claims**

Claim 10 is objected to under 37 CFR 1.75(a) for failing to particularly point out and distinctly claim the subject matter which applicant regards as his/her invention.

In claim 10, the examiner does not understand what is being claimed with "creating a virtual three dimensional model with respect to a mechanical articulator" limitation. Clarification as to what is claiming is requested.

In response to the present objection applicant explains that the language indicates that a mechanical articulator is used as a model for the virtual 3-d model that is created. While applicant's explanation makes sense, the claim language does not.

### **Rejections based on Prior Art**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 9, 10, 12 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Andersson (US 6,062,861).

Andersson discloses a virtual dental articulator having a 3-d model of a patient's upper and lower jaws and which simulates the movements of the patient's jaw (note particularly column 5, lines 17-23). The Andersson system analyzes contact points

between the upper and lower arches (note column 5, lines 24-30) which occur at different points in time during the articulation of the upper and lower images. The computer is then used to design dental modifications to correct the contact points (note column 5, lines 30-41). In regard to claim 3, it is implicit in the Andersson disclosure that the computer system be used for more than one patient.

In response to the present rejection applicant argues that Andersson only "alludes" to a virtual simulation and that there are no "explicit teachings" as to how the computer simulation is accomplished. The examiner notes that applicant's own specification is little more detailed than Andersson in explaining how the computer simulation is accomplished. Applicant further argues that the Andersson computer simulation is only two dimensional. The examiner is of the position that a three dimensional virtual model is suggested as only a three dimensional model would reasonably represent and simulate the jaw position and movements as is stated. Moreover, one skilled in the art would readily understand that computer simulation models are commonly three dimensional.

Claim 15 is rejected under 35 U.S.C. 102(b) as being anticipated by Jordan (US 6,152,731).

Jordan discloses a virtual articulator that represents a three dimensional model of a patient's upper and lower dental arches (note for example column 9, lines 18+ and Figure 12A). The Jordan model may be obtained by creating a physical model of the patient's dentition (column 9, line 37) and then digitally scanning the upper and lower

arches of the model (column 9, line 38). The spatial relationship between the upper and lower digitalized tooth models may be obtained by adding physical "alignment features" (i.e. "markers") and to the physical model and thereafter digitizing the arches (note column 10, lines 9-11). The alignment features are then used by the computer (i.e. "transition matrices") to correlate the upper and lower digital arch images. The Jordan model further includes hinge axis data that constrains and provides for plural degrees of freedom for the movement between the two virtual arches (note for example column 10, lines 33+).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andersson (US 6,062,861) in view of Ingrund et al (US 7,160,110).

Andersson teaches the determination and analyzing of contact points between the upper and lower digital arches (note column 5, lines 24-30) but fails to teach marking such locations on the digital image with different directions lengths and colors. Ingrund et al, however, teach that such points can be marked with contrasting colors (note abstract). To have marked the Andersson contact points with different colors to

better help the user visualize the image as taught by Ingrund et al would have been obvious to one of ordinary skill in the art.

Claims 6-8 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andersson (US 6,062,861) in view of Jordan (US 6,152,731).

Andersson is somewhat vague on how the physical model is scanned and the digital upper and lower arches aligned (note Figure 2 and column 5, lines 15-22), however, Jordan discloses in more detail how such electronic imaging and alignment may occur with the use of reference markers. In the Jordan reference the imaged articulator may be obtained by creating a physical model of the patient's dentition (column 9, line 37) and then digitally scanning the upper and lower arches of the model (column 9, line 38). The spatial relationship between the upper and lower digitalized tooth models may be obtained by adding physical "alignment features" (i.e. "markers") and to the physical model and thereafter digitizing the arches (note column 10, lines 9-11). The alignment features are then used by the computer (i.e. "transition matrices") to correlate the upper and lower digital arch images. The Jordan model further includes hinge axis data that constrains and provides for plural degrees of freedom for the movement between the two virtual arches (note for example column 10, lines 33+). To have merely used the prior art Jordan method to establish the digital articulator of Andersson would have been obvious to one of ordinary skill in the art.

Claims 16-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jordan (US 6,152,731) in view of Duret et al (US 5,237,998).

As noted above Jordan disclose the use of "alignment features" (i.e. markers) that can be added to the model and thereafter digitized with the model (column 10, lines 8-11) , but fails to teach the malleable material with spherical reference markers protruding therefrom. Duret et al, however for such markers used in the scanning of dental models teaches that it is desirable to use spherical reference markers 15, 16 that are attached to the physical model's teeth with malleable materials 9 and/or 18. To have used the prior art reference marker system of Duret et al for the Jordan added alignment features in order to help align the the scanned images would have been obvious to one of ordinary skill in the art.

#### **Action Made Final**

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of


Art Unit: 3732

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication should be directed to **Ralph Lewis** at telephone number **(571) 272-4712**. Fax (571) 273-8300. The examiner works a compressed work schedule and is unavailable every other Friday. The examiner's supervisor, Cris Rodriguez, can be reached at (571) 272-4964.

R. Lewis  
October 1, 2007



Ralph A. Lewis  
Primary Examiner  
Au 3732